Cache National Forest

Utah and Idaho

Strawberry-Sharon Road in Strawberry Canyon. F–190026

United States Department of Agriculture

Forest Service

Intermountain Region

MF-9 R. 4

NATIONAL FOREST VISITORS

The Cache National Forest offers good opportunities for recreation, education, and inspiration.

Visitors are asked to observe the following health rules:

1. **Purification.**—Help keep the waters pure. Mountain streams if contaminated will not purify themselves in a few hundred feet. Boil all suspected water.
2. **Garbage.**—Burn or bury all garbage, papers, tin cans, and old clothes where garbage pits and incinerators are not provided.
3. **Washings.**—Do not wash soiled clothing, utensils, or bodies in streams, lakes, or springs. Use a container and throw dirty water on ground away from water supply.
4. **Toilets.**—Use public toilets where available. They are located to protect the water against contamination.
5. **Excretions.**—Where toilets have not been provided, bury, a foot deep, all human excrement, at least 200 feet from streams, lakes, or springs.
6. **Observe Laws.**—Observe rules and endeavor to have others do the same. National and State laws inflict heavy penalties for health law violators. Report all violations or insanitary conditions (including dead animals) to nearest health officer or United States forest officer.

As a further guide to travelers in the forest, the following suggestions are made:

Respect the forest signs, which have been provided at considerable cost for your convenience.

Observe the State fish and game laws.

Do not mark or otherwise damage living trees.

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THE NATIONAL FORESTS

In 1891 Congress authorized the President to set aside "forest reserves", as national forests were then called, in order to protect the remaining timber on the public domain from destruction and to insure a regular flow of water in the streams. Since that time national forests have been created either by Presidential proclamation, act of Congress, or by purchase, until today there are 145 forests, with a total net area of approximately 161 million acres, scattered through 32 States and 2 Territories, from Maine to California and from Puerto Rico to Alaska. These extensive Federal forests, if consolidated, would cover a land area approximately three times that of the State of Utah. They are administered by the Forest Service of the United States Department of Agriculture.

Logan Canyon, Cache National Forest

Choice camping spots are numerous in the canyons on the Cache National Forest, and in some of them summer homes have been built. The streams of the forest give life to vegetation, furnish power, and supply water for domestic use.

CACHE NATIONAL FOREST, UTAH AND IDAHO

The Cache National Forest, with its timber, water, forage, wild life, and recreational resources, covers a total area of 800,179 acres of mountainous territory in northern Utah and southeastern Idaho. There are seven divisions: the Elkhorn and Oxford divisions, administered from a ranger's headquarters at Malad, Idaho; the Pocatello and Portneuf divisions, with ranger's headquarters at Pocatello, Idaho; the Main division, with three rangers' headquarters, i.e., Minkcreek and Paris, Idaho, and Logan, Utah; the Randolph and Monte Cristo divisions, with ranger's headquarters at Laketown, Utah.

PURPOSE

A national forest might be considered a "forest farm" which supplies a number of products, such as timber, forage, game, fish, and recreation, and at the same time guards the watershed values. The citizens of the United States are the owners, the forest officers the managers. On a national forest scientifically and properly managed, the mature or ripened crops must be harvested in such a way that a sustained yield is insured. Through study, experimentation, and practice, yields should not only be perpetuated but increased.

The Cache National Forest is therefore administered to produce more and better timber and forage, to produce more fish and game, to preserve and develop recreational and scenic values, to insure protection of watersheds, to secure wise use for all these resources permanently, and to encourage bona fide development of mineral resources. In brief, the aim is for the highest beneficial returns to the largest number of people.

ACCESSIBILITY

Much of the interior region of the Cache National Forest is accessible to automobile travel during the summer season. Good roads lead from Cache Valley through Logan Canyon and the Strawberry-Emigration Canyons to Bear Lake. Good roads also are built into most of the larger canyons to make available the timber, grazing, and recreational resources. The Forest Service cooperates with the local counties in the construction and maintenance of these roads.

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WATERSHED PROTECTION

The Cache National Forest was created primarily for the protection of the watersheds of the streams furnishing domestic and irrigation water to the tributary cities, towns, and farms. Pocatello, Logan, Smithfield, Preston, Malad, Paris, Grace, and many of the smaller towns pipe their domestic water direct from springs and streams within the forest. The watersheds within the Cache Forest furnish annually more than 1,100,000 acre-feet of water. Much of this is used from one to four times for the generation of power and then diverted to irrigation. Often the irrigation systems provide for collecting the drainage water from the higher farms and using it two or more times before it finally empties into Salt Lake or Snake River.

On the higher portion of the Cache the snow during a normal year accumulates to a depth of from 7 to 8 feet on the level, with a water content of from 35

Head of Providence Canyon from Mount Logan.

to 40 inches. In the heavy drifts, where it blows off the ridges, it will sometimes be from 20 to 30 feet in depth. Storage of this kind furnishes the later water so urgently needed by the farmers for the maturing of crops.

TIMBER

The timber stands of the Cache were cut very heavily during the early settlement of northern Utah and southern Idaho, and in many instances fires burned over these areas, leaving the stands unproductive for

Cut over and burned over in early days, but gradually restocking.

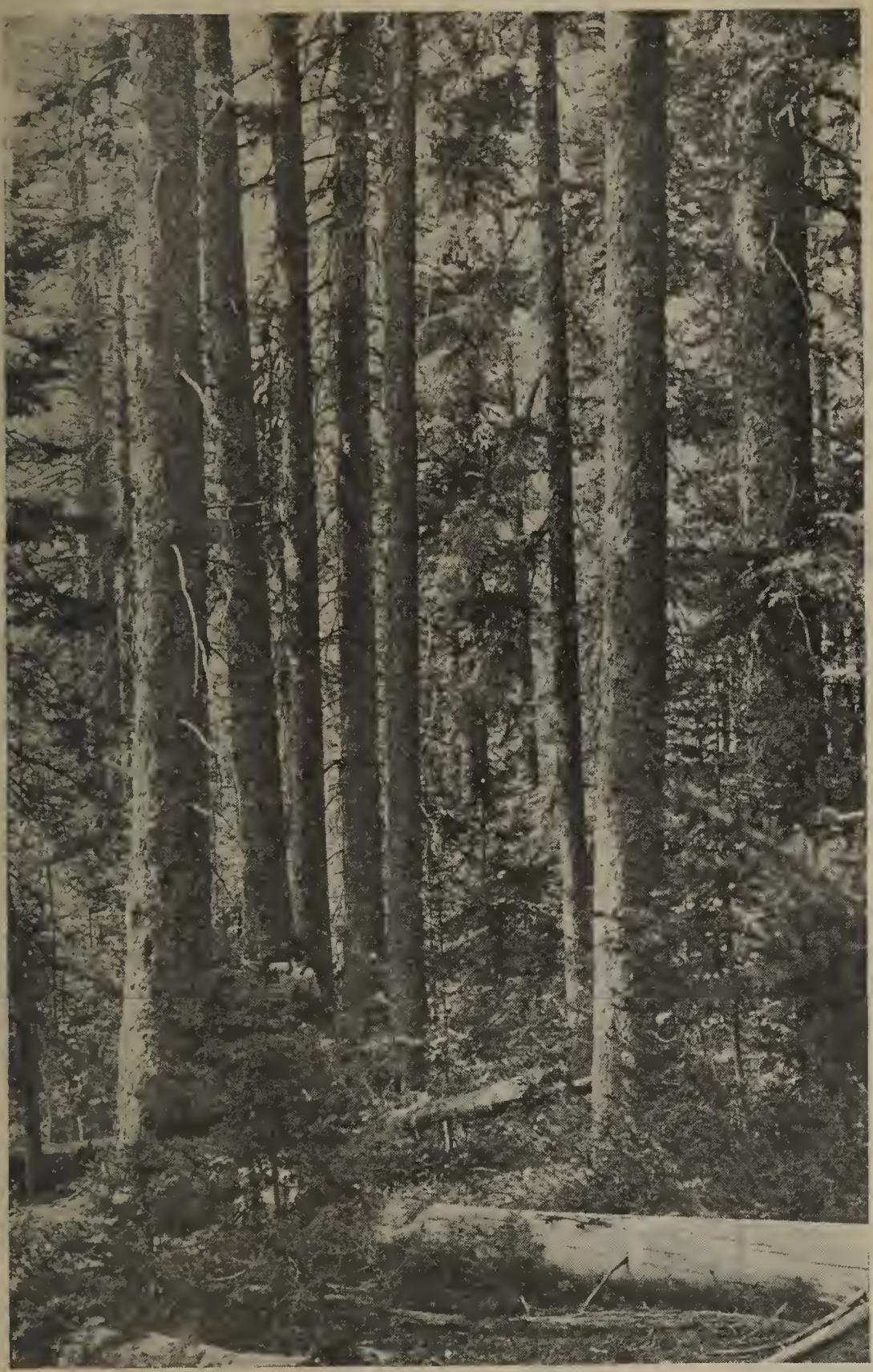
many years. These timber areas are now restocking and the future timber production of the Cache will be much greater than at present. There are now 34 sawmills cutting timber on this forest and the annual timber growth is approximately 10 million feet.

The coniferous forests of the Cache, found chiefly at the higher elevations and on north slopes where there is sufficient moisture, are composed of Douglas fir (*Pseudotsuga taxifolia*), lodgepole pine (*Pinus contorta*) Engelmann spruce (*Picea Engelmannii*), and alpine fir (*Abies lasiocarpa*).

The timber stands are sufficient to supply the local needs for building material, farm timbers, and fuel, but do not supply the higher class finishing materials.

The volume of timber that is grown in a year or in a given period of years, determines the amount of timber which can be cut each year. A continuous supply of timber is assured by following the sustained yield system; that is, cutting no more in a year or a period of years than the forest is producing.

Timber in this region grows slowly because of the short growing season and the deficiency of moisture in July and August. Usually it takes about 160 years to produce mature timber and saw logs from Douglas fir and Engelmann spruce. Lodgepole pine matures in about 120 years. The Forest Service practice of cutting, however, provides for taking out the older mature trees and leaving the smaller ones to develop. Under this system of harvesting the timber, a stand may be cut over about every 40 years.



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A mixed stand of Englemann spruce and lodgepole pine before cutting.

GRAZING

The greater part of the area within the forest boundaries is covered with forage. In order to utilize it, permits are issued to farmers and ranchers for the grazing of cattle, horses, and sheep. In this manner 100,000 head of sheep and 24,000 head of cattle and horses are cared for while the farm crops are being planted and harvested. Sheep are grazed in bands of about 1,300 head of ewes with their lambs. Each herd has its own allotment and the herder handles the sheep

so that the range is not injured. Cattle and horses are likewise cared for by a rider who sees that they are properly salted and distributed over their allotment. Grazing use is supervised by the forest ranger so as to maintain and improve the range for the benefit of the local ranchers and farmers.

The holders of grazing permits pay to the Government a grazing fee of 20 cents per head per month for cattle and horses and 4¾ cents per head per month for sheep. Twenty-five percent of all forest receipts goes to the counties in which the forests are located, to be used for roads and schools. An additional 10 percent is expended by the Government for roads and trails within the forests.

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Regulation of grazing protects the watersheds.

FISH AND GAME

The streams of the Cache Forest furnish good fishing. Utah and the Federal Bureau of Fisheries annually plant approximately one million fingerlings in the mountain streams adjacent to Cache Valley. In cooperation with the same Bureau, Utah and Idaho plan to place two million fingerlings annually in Bear Lake. Idaho stocks the Idaho streams of the Cache Forest from the Hay Spur hatchery.

Deer and elk herds on the Cache are increasing annually and furnish excellent hunting. In 1931, it is estimated, 3,000 hunters visited the Cache Forest and secured 725 deer, 97 bull elk, 4 mountain lions, 14 black bear, 60 lynx, and 656 coyotes.

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The Forest Service cooperates with the game departments of the States in the protection and care of the fish and game.

During winters of heavy snowfall it is often necessary for the States to feed some of the elk and deer to prevent loss.

RECREATION

Good camping grounds may be found along all the canyon roads within the forest, but the choicer spots are in Logan Canyon, east fork of Minkcreek, Eight Mile, left-hand fork of Blacksmith Fork, Cub River, and St. Charles Canyon.

Scout camps are located in Logan Canyon, Smithfield Canyon, Cub River, and the east fork of Minkcreek. The girls have camps in Logan Canyon and on Cub River. There are summer homes in Logan Canyon, Smithfield Canyon, High Creek, and the east fork of Minkcreek.

Logan Canyon is especially popular for camping and hiking. Mountain trails have been built by local organizations to many points of interest.

THE JUNIPER "JARDINE"

The juniper tree in Logan Canyon, named "Jardine" in honor of a former Secretary of the U.S. Department of Agriculture, is a majestic monarch of the

Through the timber and over the hills. F–190098

distant past. Approximately 3,000 years ago this giant of its species was a mere seed that had lodged in a crevice on the point of a ledge. The soil was shallow and moisture scarce, but endowed with the hardy characteristics of its kind, the seed sent roots into the rock crevices and pushed its head up to the sunlight. Year after year its roots went deeper into the cracks as it became more firmly established.

At the present time the tree and rocks in which it is growing tell of the mighty struggle that has been going on for 30 centuries. The ledge in which the tiny

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Juniper "Jardine." F–190203

seedling started its life is now broken and tons of rock have been gradually forced apart by its slow but steady growth.

The tree is not smooth and graceful in appearance—quite the contrary. Its appearance tells of a lifelong competition against great odds. Winds, storm, cold, heat, and the lack of summer moisture are but a few of the enemies with which this courageous hero has battled.

BEAR LAKE

Bear Lake is not within the forest, but is viewed from and partially fed from the drainage of the Cache Forest. The lake is 30 miles long and from 5 to 7 miles wide, the north half being in Idaho and the south half in Utah. Its elevation is 5,924 feet above sea level.

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Stocked with fish, Bear Lake should provide a sportsman's paradise.

It can be reached from Montpelier and Paris, Idaho, or from Laketown and Logan, Utah. From Logan, it is 41 miles by way of Logan Canyon.

Three resorts on the lake shore provide ample accommodations for visitors. Boats may be rented at several points, while swimming and fishing are popular summer pastimes. The water from Bear Lake provides power for four electric generating plants and is intensively used for irrigation purposes.

FIRE CONTROL

Fire is the greatest single obstacle to the successful practice of forestry in the United States. The role of

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Help prevent catastrophies caused by human carelessness.

A hiking party near Tony Grove Lake.

fire is that of a destroyer. At the call of fire the forest officer must drop all other work to combat an evil that may utterly destroy the forest crops, sometimes for centuries. Every fire in proportion to its size and intensity exacts its toll of damage.

National forests owned by you, the public, are dedicated to public service, and if protected from fire are destined to fulfill a high type of service. This protection is as much your responsibility as it is your neighbors—DO YOUR PART.

Timber, watersheds, forage, wild life, and recreation all suffer when forests burn.

GEOLOGY

(By William Peterson, Director, Extension Division Utah State Agricultural College)

Glaciers.—During the Pleistocene period, when great glaciers moved in the northern part of North America, when heavy alpine glaciers were present in the Uintah and Wasatch Mountains, and when Lake Bonneville occupied the great basin, at least 25 alpine glaciers were reshaping the surface of the canyons in the Cache National Forest. These glaciers varied in length from 2 to 8 miles and in many places the thickness of the ice was 600 feet.

During this period glaciers developed where windblown snow, as well as the regular snow fall, had unusual collection and protection from the sun, and the glaciers usually did not move below 6,000 feet. The glaciers occupied canyons already developed by stream erosion, reshaping them from a sharp V-notch

gorge to a U-shaped flat bottom canyon, lining the sides with lateral moraines and usually plugging the end with a large amount of glacial drift in the form of a terminal moraine. Several of the canyons are still plugged, the upper stream never having washed out the terminal moraine. The upper water sank in the glacial till and slowly percolated to springs below.

The heads of the canyons are worked into cirques or amphitheaters, several of which are occupied by beautiful mountain lakes. Examples of these are Tony Grove Lake, White Pine Lake, and Deep Lake in Bloomington Canyon.

Quaking aspen.

In each case the glaciation has added new topography, with unusual beauty and new interest to the canyons. On the road leading through the forest one can view the glacial moraine near White Pine Canyon. The mass of incoherent debris, unassorted and covered with heavy vegetation, lying east of the road near the mouth of White Pine is the terminal moraine from the White Pine Glacier, which was once nearly 8 miles in length. The terminal moraine from the second glacial period can be seen as a fill across the canyon located only a mile or two west of the road at this point.

Where the road leaves Beaver Creek going to Bear Lake, glacial moraines are very pronounced on the north side of the road. Two glacial periods corresponding to the two most pronounced glacial activities in other localities are recorded in the Cache National Forest. These are easily distinguished by the differ-

ence in freshness between the two periods. There was probably more time between the two glacial periods than there has been since the last one.

Glacial lake at the head of White Pine Canyon.

GEOLOGY IN LOGAN CANYON

(By Reed W. Bailey, Professor of Geology, Utah State Agricultural College)

The approach to Logan Canyon is over a series of deltas which were deposited by Logan River in the ancient Lake Bonneville. The high level of the old lake can be distinctly seen along the face of the mountain at an elevation of about 5,200 feet and the several other levels are well preserved in the steplike profile of the deltas as they descend to the valley floor. The campus of the Utah State Agricultural College is located on the most extensive delta terrace, called the Provo level, while the Mormon Temple overlooks the valley from the Stansbury delta, built at that stage of the ancient lake.

Logan Canyon was cut by the river before the lake occupied this area, and so, when the lake was at its greatest expanse, the waters extended up the canyon about 11 miles to near the Card Canyon Ranger Station. Remnants of the old lake fill occur as terraces and sand, gravel, and clay deposits at intervals along the canyon sides.

The steep front of the Bear River Range is a great fault scarp (Bear River Range Fault), somewhat modified by erosion which was produced when a north-south break cut across the canyons and spurs and dropped Cache Valley approximately 8,000 feet. The

valley has subsequently been filled with about 2,000 feet of unconsolidated material. The evidence of the fault can be seen in the faceted spurs and beveled structures along the mountain front.

Logan Canyon, where it cuts through the front range, is a real gorge almost a mile deep, and from Beirdneau Peak to Logan Peak on each side of the canyon it is only 5 miles wide. (Grand Canyon of the Colo-

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A mixed Engelmann spruce and lodgepole pine stand after cutting, which provides light for the development of young trees and space for the starting of seedlings.

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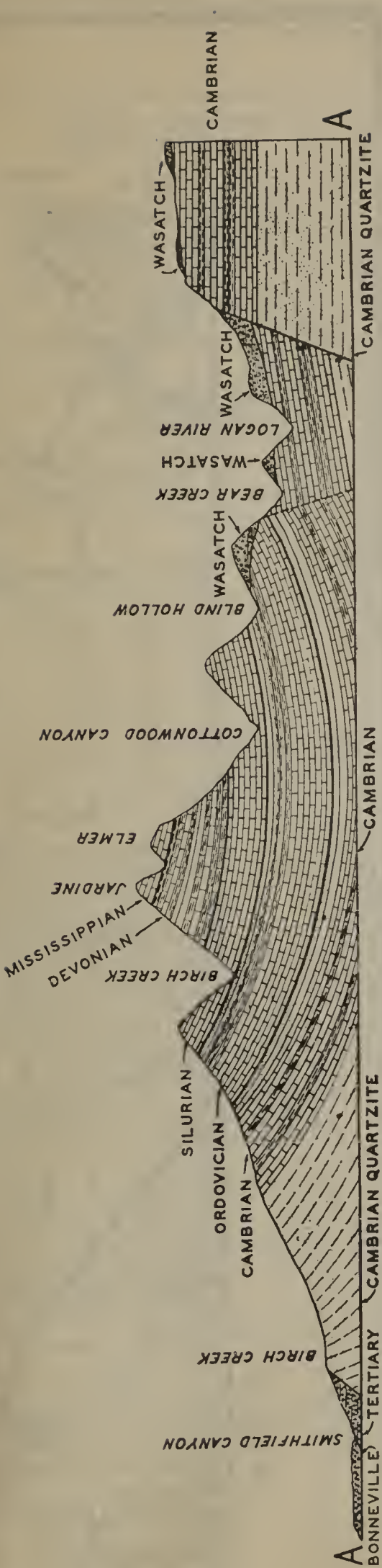

Geological chart of Logan Canyon.

rado at Bright Angel Point is 1 mile deep and 11 miles wide.)

The canyon is typical of many canyons cutting

through the Wasatch Mountains in that it is steeper and more gorgelike at its mouth than in any other part of its course. This is due to the lowering of the valley floor by repeated faulting, which has periodically rejuvenated the stream, causing it to cut more rapidly near its mouth.

The structure of the Bear River Range, seen along the Logan Canyon Highway, is synclinal and anticlinal. The limestone, shale, and sandstone strata are well exposed as ledges, so that the folds and breaks show up conspicuously. Near the mouth of the canyon these layers that have been rising on the west limb of the syncline become completely overturned, so that on the front of the range at this point the sequential order of the beds are reversed. The high front range occupies the central part of the syncline, while Logan River in its southward course from the Idaho State line to about Burnt Bridge is following along a broad valley cut in the top of the anticline. To the east of the river in the Tony Grove section is the Temple Range, a part of the Bear River Range. This is the east limb of the anticline which slopes down to Bear Lake Valley.

The rock walls in the canyon reveal one of the most complete Paleozoic sections to be found anywhere. Great thicknesses of quartzite, limestones, dolomites, sandstones, and shales of Cambrian, Ordovician, Silurian, Devonian, Mississippian, and Pennsylvanian periods are exposed. These systems have been subdivided into the following divisions:

		Feet
Pennsylvanian	Wells	3,000
Mississippian	Brazer limestone	2,100
	Madison limestone	2,000
Devonian	Three Forks	200
	Jefferson limestone	2,000
Silurian	Laketown dolomite	1,000
Ordovician	Fish Haven dolomite	500
	Swan Peak quartzite	500
	Garden City limestone	1,250
Cambrian	St. Charles limestone	1,000
	Nounan limestone	1,050
	Bloomington limestone and shale	1,200
	Blacksmith limestone	750
	Ute limestone	760
	Langston limestone	260
	Brigham quartzite	16,000

In different parts of the range Wasatch conglomerate sandstone and limestone rest unconformably upon the eroded and folded Paleozoic rock. These Tertiary formations are characteristically red in color. Red Banks, west of the road just above Tony Grove Ranger Station, is a typical exposure.

Fossils occur abundantly in some formations. Trilofites, graptolites, seaweeds, and brachiopods are common to the Cambrian and Ordovician rocks. Corals, both honeycomb and chain, are characteristic of the Silurian. The Devonian is rather unfossiliferous, but plates of ancient armored fish are abundant in some formations of this system. The Mississippian and Pennsylvanian formations are highly fossiliferous, containing well-preserved brachiopods, cup corals, flastoids, pipe-organ corals, and clams. Just below the forks of the canyon the Swan Peak quartzite (Ordovician) outcrops, and large slabs on each side of the road contain impressions of seaweeds (fricoids) of great antiquity.

The springs at the fish hatchery and the Logan City water intake issue from the trough of the syncline. Logan Canyon cuts through the structure, allowing the ground water to drain out at this place.

The conspicuous massive limestone ledge on both sides of the canyon in the vicinity of the fish hatchery is known as the "Chinese Wall." It is the Madison limestone.

Logan Canyon Cave has resulted from the solvent action of ground water working along a fracture in the Ordovician limestone. The deposits in the cave, called stalactites and stalagmites, are of the mineral calcite and were deposited by ground water on the floor and ceiling of the cave.

Ricks Spring issues from a fault which has gathered the waters from the mountains to the north and west.

Just before reaching the Bear Lake summit, the road passes through two large depressions which have no surface outlets. The water and snow which fall in this area drain down through underground channels. These depressions are sink holes formed in limestone and dolomites by solution, the dissolved material having been carried away by underground water.

Reproduction of alpine fir under quaking aspen in Cowley Canyon.
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SIX RULES FOR PREVENTING FIRE ON THE FORESTS

1. **Matches.**—Be sure your match is out. Break it in two before you throw it away.
2. **Tobacco.**—Be sure that pipe ashes and cigar or cigarette stubs are dead before throwing them away. Never throw them into brush, leaves, or needles. Place them in the road, trail, or on bare ground, and stamp out with the foot.
3. **Making Camp.**—Before building a fire scrape away all inflammable material from a spot 5 feet in diameter. Dig a hole in the center and in it build your camp fire. Keep your fire small. Never build it against trees or logs, or near brush.
4. **Breaking Camp.**—Never break camp until your fire is out—DEAD OUT.
5. **Burning Brush.**—Never burn slash or brush in windy weather or while there is the slightest danget that the fire will get away. From JUNE 1 to SEPTEMBER 30 no brush may be burned except under written permit.
6. **How to Put Out a Camp Fire.**—Stir the coals while soaking them with water. Turn small sticks and drench both sides. Wet the ground around the fire. If you can't get water, stir in earth and tread it down until packed tight over and around the fire. BE SURE THE LAST SPARK IS DEAD.

A MOMENT OF CARE
MAY SAVE
MONTHS OF REGRET

THE CODE
OF GOOD SPORTSMEN

1. There is more honor in giving the game a square deal than in getting the limit.

2. Help enforce the game laws. Game and fish are public property—for the enjoyment of both yourself and the fellow who comes after you. Violations of game laws should be reported to the nearest deputy game warden or forest ranger.

3. Respect the ranchman's property. Do not leave his gates open, break down his fences, disturb his stock, or shoot near his dwelling. Put yourself in his place. Ask his permission to hunt on his premises.

4. Be careful with your camp fire and matches. One tree will make a million matches; one match can burn a million trees.

5. Leave a clean camp.

6. Put out all forest fires discovered if you can. If you cannot put them out, report them promptly to the nearest forest officer.

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FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE

CACHE
NATIONAL FOREST
IDAHO AND UTAH

BOISE AND SALT LAKE MERIDIANS

1932

U. S. DEPARTMENT OF AGRICULTURE
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GREAT SALT LAKE

BEAR RIVER BAY

BEAR LAKE

BEAR RIVER RANGE

PREVENT FOREST FIRES IT PAYS

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Strawberry-Sharon Road in Strawberry Canyon. F–190026

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